

1. (Twice Amended) A network device which supports Mobile IP and is configured to send an accounting request, the accounting request identifying a mobile node, the network device comprising:

a memory; and

a processor coupled to the memory, wherein the network device is adapted for updating a counter associated with the mobile node's activity, the network device adapted for sending the accounting request identifying the mobile node and including the counter to a server adapted for recording accounting information associated with the mobile node using the counter, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed, wherein the server maintains accounting information for a plurality of mobile nodes, the plurality of mobile nodes being supported by a plurality of network devices, each of the plurality of network devices being a Home Agent or a Foreign Agent adapted for sending an accounting request to the server to update accounting information associated with a mobile node.

2. The network device as recited in claim 1, wherein the counter indicates at least one of a number of packets received by the mobile node and a number of packets sent from the mobile node.

3. (Twice Amended) A server configured to receive an accounting request from a network device which supports Mobile IP, the accounting request identifying a mobile node, the server comprising:

a memory; and

a processor coupled to the memory, wherein the server is adapted for storing accounting information for a plurality of mobile nodes and logging accounting information associated with the mobile node in response to the accounting request received from the network device, the network device being a Home Agent or a Foreign Agent, the accounting request including at least one counter associated with the accounting information, the plurality of mobile nodes being supported by a plurality of network devices, each of the plurality of network devices being a Home Agent or a Foreign Agent.

4. The server as recited in claim 3, wherein the server is adapted for sending an accounting reply to the network device in response to the accounting request, the accounting reply acknowledging logging of the accounting information pertaining to the mobile node.

5. The server as recited in claim 3, wherein the counter indicates a number of packets that have been sent to the mobile node.

6. The server as recited in claim 3, wherein the counter indicates a number of packets that have been sent from the mobile node.

7. The server as recited in claim 3, wherein the counter indicates a number of registrations that have been accepted.

8. The server as recited in claim 3, wherein the counter indicates a total service time for the mobile node.

9. The server as recited in claim 3, wherein the counter indicates at least one of a number of bytes that have been sent to the mobile node and a number of bytes that have been sent from the mobile node.

12. The server as recited in claim 3, wherein the server is a TACACS+ or a RADIUS server.

13. (Twice Amended) In a network device which supports Mobile IP, a method of updating accounting information for a mobile node operating according to Mobile IP Protocol, comprising:

composing a request packet for the mobile node, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node; and

sending the request packet to a server adapted for performing accounting for the identified mobile node using the counter in response to the request packet, the network

device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed.

14. (Once Amended) The method as recited in claim 13, further comprising:

receiving a reply packet for the mobile node identified in the request packet from the server, the reply packet acknowledging logging of the accounting information pertaining to the mobile node.

15. The method as recited in claim 13, wherein the request packet includes at least one counter associated with the accounting information.

16. The method as recited in claim 13, wherein the counter indicates a number of packets that have been sent to the mobile node.

17. The method as recited in claim 13, wherein the counter indicates a number of packets that have been sent from the mobile node.

18. The method as recited in claim 13, wherein the counter indicates a number of registrations that have been accepted.

19. (Once Amended) The method as recited in claim 13, wherein the counter indicates a total service time for the mobile node.

20. The server as recited in claim 13, wherein the counter indicates at least one of a number of bytes that have been sent to the mobile node and a number of bytes that have been sent from the mobile node.

22. The method as recited in claim 13, wherein the server is a TACACS+ or a RADIUS server.

23. (Once Amended) The method as recited in claim 13, further comprising:

receiving a data packet from the mobile node, wherein composing the request packet is performed in response to receiving the data packet.

24. (Once Amended) The method as recited in claim 23, further comprising:

forwarding the data packet to another network device.

25. The method of claim 13, wherein composing a request packet for the mobile node is triggered by an accounting event.

26. The method of claim 25, wherein the accounting event is a new registration or the termination of a registration.

27. (Twice Amended) In a server, a method of updating accounting information for a mobile node operating according to Mobile IP Protocol, comprising:

receiving a request packet from a network device operating under Mobile IP Protocol, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed;  
and

logging the accounting information for the mobile node identified in the request packet using the counter of the request packet.

28. (Once Amended) The method as recited in claim 27, further comprising:

sending a reply packet for the mobile node identified in the request packet, the reply packet acknowledging logging of the accounting information pertaining to the mobile node.

29. (Once Amended) The method as recited in claim 27, further comprising:

generating a bill for Mobile IP services from the accounting information.

30. The method as recited in claim 27, wherein the counter indicates a number of packets that have been sent to the mobile node.

31. The method as recited in claim 27, wherein the counter indicates a number of packets that have been sent from the mobile node.

32. The method as recited in claim 27, wherein the counter indicates a number of registrations that have been accepted.

33. The method as recited in claim 27, wherein the counter indicates a total service time for the mobile node

34. The server as recited in claim 27, wherein the counter indicates at least one of a number of bytes that have been sent to the mobile node and a number of bytes that have been sent from the mobile node.

36. The method as recited in claim 27, wherein the server is a TACACS+ or a RADIUS server.

37. (Twice Amended) A computer-readable medium having thereon computer readable instructions for updating accounting information for a mobile node in a network device, the instructions comprising:

instructions for composing a request packet for the mobile node, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node; and

instructions for sending the request packet to a server adapted for performing accounting for the identified mobile node using the counter in response to the request packet, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed.

38. (Once Amended) The computer-readable medium as recited in claim 37, further comprising:

instructions for receiving a reply packet for the mobile node identified in the request packet, the reply packet acknowledging logging of the accounting information for the mobile node.



39. (Twice Amended) A computer-readable medium having thereon computer readable instructions for updating accounting information for a mobile node, the instructions comprising:

instructions for receiving a request packet from a network device, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed; and

instructions for logging the accounting information for the mobile node using the counter.

40. (Once Amended) The computer-readable medium as recited in claim 39, further comprising instructions for sending a reply packet for the mobile node identified in the request packet, the reply packet acknowledging logging of the accounting information for the mobile node.

41. The network device as recited in claim 1, wherein the network device is adapted for sending the accounting request including the counter to the server when a packet is sent by the mobile node or received by the mobile node.

42. The network device as recited in claim 1, wherein the accounting request further includes a value associated with the counter.

43. The network device as recited in claim 2, wherein the packets received by the mobile node and sent by the mobile node are intercepted by the network device.

44. The server as recited in claim 3, wherein the accounting request further includes a value associated with the counter.

45. The server as recited in claim 8, wherein the total service time is a total of one or more registration lifetimes for the mobile node.

46. The server as recited in claim 10, wherein each of the plurality of network devices is a Home Agent or a Foreign Agent.

47. (Once Amended) A network device which supports Mobile IP and adapted for updating accounting information for a mobile node operating according to Mobile IP

Protocol in a network device, comprising:

means for composing a request packet for the mobile node, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node; and

means for sending the request packet to a server adapted for performing accounting for the identified mobile node using the counter in response to the request packet, the network

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device being a Home Agent supporting the mobile node or a Foreign Agent to which the  
mobile node has roamed.

## REPLACEMENT SHEETS

1. (Twice Amended) A network device which supports Mobile IP and is configured to send an accounting request, the accounting request identifying a mobile node, the network device comprising:

CI a memory; and

Sub DI a processor coupled to the memory, wherein the network device is adapted for updating a counter associated with the mobile node's activity, the network device adapted for sending the accounting request identifying the mobile node and including the counter to a server adapted for recording accounting information associated with the mobile node using the counter, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed, wherein the server maintains accounting information for a plurality of mobile nodes, the plurality of mobile nodes being supported by a plurality of network devices, each of the plurality of network devices being a Home Agent or a Foreign Agent adapted for sending an accounting request to the server to update accounting information associated with a mobile node.

2. The network device as recited in claim 1, wherein the counter indicates at least one of a number of packets received by the mobile node and a number of packets sent from the mobile node.

3. (Twice Amended) A server configured to receive an accounting request from a network device which supports Mobile IP, the accounting request identifying a mobile node, the server comprising:

CD a memory; and

Sub D3 a processor coupled to the memory, wherein the server is adapted for storing accounting information for a plurality of mobile nodes and logging accounting information associated with the mobile node in response to the accounting request received from the network device, the network device being a Home Agent or a Foreign Agent, the accounting request including at least one counter associated with the accounting information, the plurality of mobile nodes being supported by a plurality of network devices, each of the plurality of network devices being a Home Agent or a Foreign Agent.

4. The server as recited in claim 3, wherein the server is adapted for sending an accounting reply to the network device in response to the accounting request, the accounting reply acknowledging logging of the accounting information pertaining to the mobile node.

5. The server as recited in claim 3, wherein the counter indicates a number of packets that have been sent to the mobile node.


6. The server as recited in claim 3, wherein the counter indicates a number of packets that have been sent from the mobile node.

7. The server as recited in claim 3, wherein the counter indicates a number of registrations that have been accepted.

8. The server as recited in claim 3, wherein the counter indicates a total service time for the mobile node.

9. The server as recited in claim 3, wherein the counter indicates at least one of a number of bytes that have been sent to the mobile node and a number of bytes that have been sent from the mobile node.

12. The server as recited in claim 3, wherein the server is a TACACS+ or a RADIUS server.

 13. (Twice Amended) In a network device which supports Mobile IP, a method of updating accounting information for a mobile node operating according to Mobile IP Protocol, comprising:

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composing a request packet for the mobile node, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node; and

sending the request packet to a server adapted for performing accounting for the identified mobile node using the counter in response to the request packet, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed.

14. (Once Amended) The method as recited in claim 13, further comprising:

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C5  
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receiving a reply packet for the mobile node identified in the request packet from the server, the reply packet acknowledging logging of the accounting information pertaining to the mobile node.

15. The method as recited in claim 13, wherein the request packet includes at least one counter associated with the accounting information.

16. The method as recited in claim 13, wherein the counter indicates a number of packets that have been sent to the mobile node.

17. The method as recited in claim 13, wherein the counter indicates a number of packets that have been sent from the mobile node.

18. The method as recited in claim 13, wherein the counter indicates a number of registrations that have been accepted.

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19. (Once Amended) The method as recited in claim 13, wherein the counter indicates a total service time for the mobile node.

20. The server as recited in claim 13, wherein the counter indicates at least one of a number of bytes that have been sent to the mobile node and a number of bytes that have been sent from the mobile node.

22. The method as recited in claim 13, wherein the server is a TACACS+ or a RADIUS server.

23. (Once Amended) The method as recited in claim 13, further comprising:

receiving a data packet from the mobile node, wherein composing the request packet is performed in response to receiving the data packet.

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24. (Once Amended) The method as recited in claim 23, further comprising:

forwarding the data packet to another network device.

26. The method of claim 13, wherein composing a request packet for the mobile node is triggered by an accounting event.

26. The method of claim 25, wherein the accounting event is a new registration or the termination of a registration.

27. (Twice Amended) In a server, a method of updating accounting information for a mobile node operating according to Mobile IP Protocol, comprising:

receiving a request packet from a network device operating under Mobile IP Protocol, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed; and

logging the accounting information for the mobile node identified in the request packet using the counter of the request packet.

28. (Once Amended) The method as recited in claim 27, further comprising:

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sending a reply packet for the mobile node identified in the request packet, the reply packet acknowledging logging of the accounting information pertaining to the mobile node.

29. (Once Amended) The method as recited in claim 27, further comprising:

generating a bill for Mobile IP services from the accounting information.

30. The method as recited in claim 27, wherein the counter indicates a number of packets that have been sent to the mobile node.

31. The method as recited in claim 27, wherein the counter indicates a number of packets that have been sent from the mobile node.

32. The method as recited in claim 27, wherein the counter indicates a number of registrations that have been accepted.

33. The method as recited in claim 27, wherein the counter indicates a total service time for the mobile node

34. The server as recited in claim 27, wherein the counter indicates at least one of a number of bytes that have been sent to the mobile node and a number of bytes that have been sent from the mobile node.

36. The method as recited in claim 27, wherein the server is a TACACS+ or a RADIUS server.

37. (Twice Amended) A computer-readable medium having thereon computer readable instructions for updating accounting information for a mobile node in a network device, the instructions comprising:

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instructions for composing a request packet for the mobile node, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node; and

instructions for sending the request packet to a server adapted for performing accounting for the identified mobile node using the counter in response to the request packet, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed.

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D10

38. (Once Amended) The computer-readable medium as recited in claim 37, further comprising:

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D10

instructions for receiving a reply packet for the mobile node identified in the request packet, the reply packet acknowledging logging of the accounting information for the mobile node.

C11  
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D11

39. (Twice Amended) A computer-readable medium having thereon computer readable instructions for updating accounting information for a mobile node, the instructions comprising:

instructions for receiving a request packet from a network device, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed; and

instructions for logging the accounting information for the mobile node using the counter.

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40. (Once Amended) The computer-readable medium as recited in claim 39, further comprising instructions for sending a reply packet for the mobile node identified in the request packet, the reply packet acknowledging logging of the accounting information for the mobile node.

41. The network device as recited in claim 1, wherein the network device is adapted for sending the accounting request including the counter to the server when a packet is sent by the mobile node or received by the mobile node.

42. The network device as recited in claim 1, wherein the accounting request further includes a value associated with the counter.

43. The network device as recited in claim 2, wherein the packets received by the mobile node and sent by the mobile node are intercepted by the network device.

44. The server as recited in claim 3, wherein the accounting request further includes a value associated with the counter.

45. The server as recited in claim 8, wherein the total service time is a total of one or more registration lifetimes for the mobile node.

46. The server as recited in claim 10, wherein each of the plurality of network devices is a Home Agent or a Foreign Agent.

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47. (Once Amended) A network device which supports Mobile IP and adapted for updating accounting information for a mobile node operating according to Mobile IP

Protocol in a network device, comprising:

cl3 means for composing a request packet for the mobile node, the request packet identifying the mobile node and including at least one counter associated with accounting information pertaining to the mobile node; and

means for sending the request packet to a server adapted for performing accounting for the identified mobile node using the counter in response to the request packet, the network device being a Home Agent supporting the mobile node or a Foreign Agent to which the mobile node has roamed.

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